



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,415	08/28/2001	Steven Alan Cordes	YOR920000827US1	4360

7590 10/07/2003  
Alvin J. Riddles  
Candelwood Isle  
Box 34  
New Fairfield, Ct., CT 06812

EXAMINER

MCPHERSON, JOHN A

ART UNIT	PAPER NUMBER
----------	--------------

1756

2

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/940,415

Applicant(s)

CORDES ET AL.

Examiner

John A. McPherson

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: it appears that at page 5, lines 11-12 of the specification the doping levels of the frame/support and the membrane layer are incorrect.

Throughout most of the specification, and in the claims, it is stated that the doping level of the membrane layer is higher than the doping level of the frame/support. For example see page 4, lines 12-16 of the specification, claim 2, claim 13, and claim 15. However, at page 5, lines 7-12 of the specification, it is stated that the frame has a doping level of about  $7 \times 10^{19}$  atoms/cm<sup>3</sup>, while the doping level of the layer is about  $10^{16}$  atoms/cm<sup>3</sup>.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 includes the limitation that "said said membrane layer is doped to  $10^{19}$  atoms/cm<sup>3</sup>", however claim 13 (upon which claim 15 depends via claim 14) states that said membrane layer is doped with boron to  $7 \times 10^{19}$  atoms/cm<sup>3</sup>. Accordingly, the

scope of claim 15 is unclear because it presents a value, specifically  $10^{19}$  atoms/cm<sup>3</sup>, which is different from the value presented in a claim from which it depends, specifically  $7 \times 10^{19}$  atoms/cm<sup>3</sup>.

Furthermore, note that "said said" in claim 15, line 2 should be corrected to --said--.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2001/0016294 to Yahiro (Yahiro). Yahiro discloses an aperture plate and a process for making the same, the process comprises the steps of providing a silicon substrate; doping the silicon substrate with boron to form a boron-doped layer at the substrate surface, wherein the depth of the boron-doped layer represents the desired thickness of a membrane; etching the rear surface of the silicon substrate to form support struts and a boron-doped membrane; and etching an aperture in the membrane. See the abstract and paragraphs [0035] to [0038].

4. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-168049 (JP '049). JP '049 discloses a stencil mask and a method of manufacturing the same, the method comprising the steps of forming a boron doped layer on the surface of a silicon wafer, forming an etching mask having a desired pattern on the back side of the wafer, etching the wafer to form a support portion and a boron doped membrane, forming a protective film on the membrane, etching apertures in the membrane, and removing the protective film. See the abstracts, and Figures 2-3.

5. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,972,794 to Katakura et al. (Katakura). Katakura discloses a silicon stencil mask and a method of manufacturing the same, the method comprising the steps of forming a boron-doped layer on a silicon substrate, forming a mask pattern on the boron-doped layer, etching the boron-doped layer to form voids which do not extend completely through the boron-doped layer, etching away the silicon substrate to form struts, and etching the boron-doped layer completely through. See the abstract and column 3, line 11 to column 4, line 41.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. McPherson whose telephone number is (703) 308-2302. The examiner can normally be reached on Monday through Friday, 7:30 AM to 4:00 PM.

Application/Control Number: 09/940,415  
Art Unit: 1756

Page 5

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



John A. McPherson  
Primary Examiner  
Art Unit 1756

JAM  
9/29/03